

USSR

UDC: 681.326

KUZNETSOV, V. A., KONTORER, V. G., TARANENKO, V. A., YAMPOL'SKIY, L. S.,
BRUNSHTEYN, Yu. G., KARLOV, A. G.

"A Digital Device for Measurement of Linear Displacements"

Kiev, Mekahnizatsiya i Avtomatizatsiya Upravleniya, No 2, Mar-Apr 73, pp
68-70.

Abstract: The Sevastopol' Instrument Building Institute has developed a device for measurement of linear displacements with output of the results of measurement in digital form. The device consists of a feeler threaded to mate with a revolving driver. As the driver turns to displace the feeler, the number of revolutions of the driver is sensed by counting the number of cycles of changing voltage in the circuit of a coil attached to the driver. The device can measure linear distances with an accuracy of ± 0.05 mm.

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1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF THE EDMUNDS BIRNBAUM METHOD FOR DETERMINING THE COMPOSITION
OF COMPLEXES -U-
AUTHOR--(02)-DROZDOVA, S.N., YAMPOLSKIY, M.Z.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 595-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT
TOPIC TAGS--TEST METHOD, COMPLEX COMPOUND, CHEMICAL COMPOSITION, GALLIUM
COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1609 STEP NO--UR/0078/70/015/003/0595/0598
CIRC ACCESSION NO--AP0112603
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112603

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EDMONDS BIRNBAUM METHOD (1941) WAS USED TO STUDY COMPLEX FORMATION IN SYSTEMS CONTG. EQUIL. CONCNS. OF COLORED COMPONENTS. COMPLEXING OF GA WITH ALIZARIN S(1) WAS CHOSEN AS AN EXAMPLE. GA FORMS 1:1 AND 1:2 COMPLEXES WITH I AT PH 2.8 AND 7.08, RESP. FACILITY: KURSK, GOS. PEDAGOG. INST., KURSK, USSR.

UNCLASSIFIED

USSR

UDC 536.2

AYZEN, A. M., ZASLAVSKAYA I. G., YAMPOL'SKIY N. G., All-Union Scientific Research and Design and Construction Institute of the Petroleum Processing and Petrochemical Industry

"Concerning the Application of Perturbation Theory in Solving Three-Dimensional Nonlinear Problems of Thermal Conductivity"

Moscow, Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1249-1255

Abstract: The solution of three-dimensional problems and thermal conductivity in which the volumetric heat capacity and the coefficient of heat conductivity are both dependent on temperature is considered. The heat capacity and the coefficient of heat conductivity are approximated by expressions which more exactly agree with experiment:

$$C(t) = C_1(1 + At + Bt^2),$$

$$\lambda(t) = \lambda_1(1 + A_1t + B_1t^2).$$

By making certain transformations, the nonlinear differential equation of heat conductivity is reduced to a nonlinear equation containing a single small parameter, in terms of powers of which the asymptotic solution of the equation is found with an accuracy up to terms proportional to the cube of the small $1/2$

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AYZEN, A. M., et al., Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1249-1255

parameter. The technique for selecting the small parameter depends on the region in which the solution of the nonlinear problem is examined, whether high or low temperature. In the high-temperature region the smallness of the coefficients for t and t^2 is associated with the fact that lattice fluctuations determining the first term in the expression for heat conductivity make the basic contribution to the heat conductivity of metals; if this condition is not satisfied, the region can be broken up into sufficiently small temperature changes. By a combined application of the perturbation method and the method of finite integral transformations, the three-dimensional problem is reduced to a system of ordinary linear differential equations with a solution equivalent to the solution of the initial problem.

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USSR

UDC 629.78.015.4

YAMPOL'SKIY, O. Ya.

"Theoretical Study of the Influence of Accuracy of Testing of Clamping Force on Strength of Threaded Joints"

Tr. Ufim. Aviats. In-t. [Works of Ufim Aviation Institute], No 21, 1971, pp 102-105, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.183 by T. A. Ye.).

Translation: During assembly of important threaded joints, the force of preliminary interference is checked. Due to inaccuracy in testing, the interference forces vary within a given production group of joints. In the existing method for strength design of important threaded joints, recommended for designers, this fact is not considered in explicit form. This work points out that the relative error in interference force has a significant influence on the actual strength reserve of a bolt. In designing threaded joint for strength, it is expedient to use the concepts of the mean, minimum and maximum actual strength reserve of a bolt, together with the generally accepted theoretical strength reserve. In selecting a given method of testing the interference force, it is necessary to consider its relative error by the corresponding calculation of the actual strength reserve of the bolt.

1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--VISIBLE CRACK FORMATION SITES INITIATED BY LASER BEAMS -U-
AUTHOR--(04)-AGRANAT, M.B., NOVKOV, N.P., YUDIN, YU.I., YAMPOLSKIY, P.A.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 924-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--LASER BEAM LESION, CRACK PROPAGATION, POLYMETHYLMETHACRYLATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1997/1723 STEP NO--UR/0181/70/012/003/0924/0927
CIRC ACCESSION NO--AP0120435
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120435

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROSCOPIC EXAMN. OF POLY(ME METHACRYLATE) (I) SAMPLES IRRADIATED WITH A LASER BEAM (LAMBDA EQUALS 1.06 MU) AT AN AGLE OF 45DEGREES OR 90DEGREES, SUGGESTED THAT THE STRESS APPLIED ON I (0-300 KG-CM PRIME2) FACILITATED THE OPENING OF MICROPORES AND FORMATION OF SUBMICROSCOPIC CRACKS WHICH, IN TURN, INITIATED FURTHER CRACKING AND EVENTUAL BREAKDOWN OF I. MEKH., MOWCOW, USSR. FACILITY: INST. PROBL.

UNCLASSIFIED

USSR

UDC: 8.74

YAMPOL'SKIY, S. A., MIKUSHOV, A. V., MIKHALEV, V. I.

"Realization of an Algorithm for Comparative Evaluation of the Activity of Institutions of Higher Education in Organizing Student Research Work"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 133-145 (from RZh-Kibernetika, No 5, May 73, abstract No 5V812 by the authors)

Translation: The paper describes a procedure and program for processing data on the "MIR-1" computer on the results of competition exams of institutions of higher education with respect to the organization of student research work.

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Acc. Nr:

AP0049942

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

UR0456

101197m Mechanism of shock-wave polymerization. Yam-
pol'skii P. A.; Ignatovich T. N. (Inst. Khim. Fiz., Moscow
USSR). *Khim. Vys. Energ.* 1970, 4(1), 74-6 (Russ). Acrylamide
(I) was polymd. under static and dynamic pressures. I, com-
pressed at room temp. under a static pressure of 80 kilobars did
not polymerize but did under dynamic compression <30 kilobars.
The yield of polyacrylamide was unaffected by initial temps.
from -90 to 125°. The mechanism of the shock-wave polymn. of
I was explained on the basis of the N. N. Semenov (1960) theory.
CKJR

REEL/FRAME

19801878

780

USSR

UDC: 621.396.677

NEPOMNYASHCHIY, I. L., YAMPOL'SKIY, V. G., Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Influence Which the Amplitude-Phase Distribution of the Field in the Aperture of an Antenna has on its Directional Properties"

Moscow, Radiotekhnika, Vol 27, No 8, Aug 72, pp 50-57

Abstract: Approximate methods convenient for engineering calculations are proposed for analyzing the emission characteristics of an antenna as a function of arbitrary amplitude-phase distribution of the field in the antenna aperture. The results can be used to obtain comparatively simple expressions for the polar diagram showing the influence of specific factors on antenna radiation characteristics. In the case of small phase distortions the resultant expressions give quite satisfactory accuracy.

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USSR

UDC 621.396.677.633(088.8)

YAMPOL'SKIY, V. G.

"A Passive Radiator for a Radio Relay Line"

USSR Author's Certificate No 253176, Filed 11 Mar 68, Published 24 Feb 70 (from
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B78 P)

Translation: A patent has been granted for a passive radiator with an array made up of several identical parallel wire grids with a phase jump of $30-60^\circ$ separated by several sheets of foam plastic or other light dielectric with a thickness of $\frac{1}{4}\lambda - \frac{1}{2}\lambda$.
N. S.

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USSR

UDC 621.396.677(088.8)

YAMPOLSKIY, V. G.

"Method for Adjustment and Tuning of the Antennas of Tropospheric Communication Line Stations"

USSR Author's Certificate 218239, Filed 13 Mar 67, Published 26 Jan 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9875P)

Translation: The proposed procedure is distinguished by the fact that in order to increase the accuracy of tuning and adjustment, the tunable antenna is fed from two transmitters of a station with frequencies f_1 and f_2 by extending a horn antenna in the direction of the adjacent station to which a nonlinear element is connected with a cubic volt-ampere characteristic. The antenna is adjusted and tuned with respect to maximum signal reemitted by the horn antenna on a frequency of $2f_1 - f_2$ or $2f_2 - f_1$ and received by the tunable antenna. There is one illustration.

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USSR

UDC: 621.396.677.831

~~VAMPOL'SKIY, V.G.~~

"Reliability of Passive Relaying"

Moscow, Radiotekhnika, Vol 25, No 2, 1970, pp 5-10

Abstract: The most expedient type of passive relaying is a reflection array in the form of a single-line or double-line wire net. Such a relay array was first suggested in USSR.

The effect of wind and icing upon the performance of such a passive relay array were examined. It was shown that the effect of wind on the performance of a passive array is rather insignificant, but the effect of both coaxial and plane icing on the passive array is appreciable.

The investigation has shown that for higher reliability of performance under the conditions of heavy icing, the spacing of wires in the array net should be about two-thirds to half the distance of the spacing for conditions free of icing. It was also
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YAMPOL'SKIY, V.G.

Radiotekhnika, Vol 25, No 2, 1970, pp 5-10

shown that to improve the stability of operation of a passive array under heavy icing conditions it is best to set up the one-line array at an angle of 45° to the vector E of the incident field.

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- 27 -

USSR

UDC 621.771.28 2

POTAPOV, I. N., POLUKHIN, P. I., BONDARENKO, Ye. S., YAMPOL'SKIY, V. M.,
FINAGIN, P. M., and TARTAKOVSKIY, Ye. K.

~~SECRET~~
"Creating High Productivity Cross-Screw Pipe Rolling Mills"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya,"
1970, pp 163-171

Translation: Information is given on the designs of individual and group drives of mills, two- and three-roll working stands, and forward and rear mill tables. Industrial introduction of these designs made it possible to implement new rolling conditions which resulted in a significant rise in the productivity of pipe rolling machines and in improvement in the quality of sleeves and pipes. Five figures and 13 bibliographic entries.

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Industrial

USSR

UDC:621.791.75

BUDNIK, N.N., Engineer, IVANOV, V.V., Engineer, IVNITSKIY, B.Ya., Engineer, KRAYCHENKO, V.G., Engineer, MAGNITOV, V.S., Senior Engineer, and YAMPOLSKIY, V.M., Candidate of Technical Sciences, Docent

"A Unit for Arc Metal Surfacing in Vacuum"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 3, 1970, pp 118-121

Abstract: An SDV-7 unit for arc surfacing with Stellite in a vacuum has been designed and built at the Moscow Higher Technical School im. Bauman. The design of the unit is based on a method of welding and surfacing with nonconsumable electrode in a vacuum, developed by the above mentioned School. Stellite 7 (see Fig. 1) is melted by a DC arc burning between cathode K and the article to be surfaced A--anode. The design of the unit incorporates parts and elements of a standard welding and vacuum equipment. The basic technological specifications of the SDV-7 unit are: volume of the vacuum chamber 300 l, ultimate vacuum in the chamber $5 \cdot 10^{-4}$ mm Hg, operational vacuum $2 \cdot 10^{-3}$ mm Hg, time required to achieve operational vacuum 3--4 min, diameter of 1/4

BUDNIK, N.N. et al., Izvestiya Vysshikh Uchebnykh Zavedeniy Mashinostroyeniye, No 3, 1970, pp 118-121

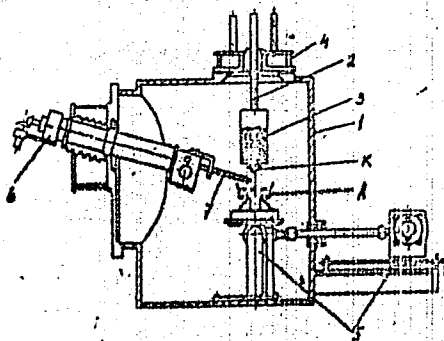


Fig. 1. Diagram of the SDV-7 metal surfacing unit

Stellite rod 6--7 mm, maximum diameter of surfaced articles 300 mm, and power input 10 kw. The unit (see Fig. 1) consists of a working
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BUDNIK, N.N. et al., Izvestiya Vysshikh Uchebnykh Zavedeniy Mashinostroyeniye, No 3, 1970, pp 118-121

chamber of the vacuum system, welding gun with a mechanism for the vertical movement of a filler rod (Stellite), mechanism for rotating and longitudinal movement of the surfaced part, control panel, and power supply for the welding arc. The vacuum chamber, made of 1Kh18N9T stainless steel plate, 6 mm thick, is reinforced with V-shaped channels. Parts to be surfaced are loaded into the chamber through a hatch which seals hermetically by means of a vacuum seal and four lever clamps. The welding gun with a vertical movement mechanism, and electromagnet and electric arc supply terminals are located in the upper part of the chamber. A filler rod feeding mechanism and a valve for letting the air into the chamber are located in the side walls of the chamber. For visual observation of the surfacing process the chamber is fitted with three plastic windows, 20--25 mm thick. The vacuum system of the SDV-7 unit consists of a VN-4G preliminary vacuum pump, BN-3 high vacuum pump, vacuum shut-off valves, and connecting pipes. The degree of vacuum is controlled by VT-3 and VM-1 vacuumeters. The welding gun consists of a water-cooled cathode and electromagnet 3. The electromagnet winding is made of an 8 mm copper tube. Cooling water is fed through special inlets 4 in one of the chamber's collars. The mechanism 5 for the movement of the part is

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BUDNIK, N.N. et al., Izvestiya Vysshikh Uchebnykh Zavedeniy Mashinostroyeniye, No 3, 1970, pp 118-121

capable of moving the part longitudinally with a speed of 0 to 22 m/hr and rotate it at 0--6 RPM. The filler material feeding mechanism consists of a DC motor, reducer and feed rollers. It can hold either 6--7 mm diameter rods or a 20 mm wide strip. Smooth control of the feed rate in the 9--80 cm/min range, and reverse moving of the rod is accomplished by varying the voltage in the DC motor winding. The control panel is located right on the chamber. Welding transformer of the PS-500-type is used as an arc power supply. An industrial variant of this unit for arc surfacing of valve parts is being designed.

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UDC: 51

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Solution of the Problem of Optimum Distribution of a Set of Jobs"

Mekhaniz. i avtomatiz. upr. Nauch.-proizv. sb. (Mechanization and Automation of Control. Scientific-Production Collection), 1971, No 6, pp 9-10 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V469)

Translation: The paper deals with problems of constructing a mathematical model of the solution for the problem of finding the optimum distribution of a set of jobs among the subdivisions of some organizational system. Two models with Boolean variables are written out. [From the authors' abstract].

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USSR

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Statement and Solution of One Classification Problem"

Kibernetika i vuz. [Cybernetics and the University -- Collection of Works], No 4, Tomsk, 1971, pp 11-32, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V424 by the author's).

Translation: A statement is presented of a classification problem of a rather general type with a criterion considering losses from various objects within classes, losses from the number of classes, losses from the spread of classes as to magnitude. An algorithm is suggested based on the method of branches and bounds for solution of this problem with a fixed number of classes and linear dependence of losses on the difference of objects within classes, on the spread of classes as to magnitude and also with limitations on the magnitude of classes.

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USSR

UDC 51.330.115

AOCHNEV, L. V., YAMPOL'SKIY V. Z.

"Solution of Problem of Optimization of Structural Parameters of Complex Queueing Systems"

Kibernetika i Vuz. [Cybernetics and the University -- Collection of Works], No. 3, Tomsk University Press, 1970, pp 86-96 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V598).

No Abstract.

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USSR

UDC: 8.74

YAMPOL'SKIY, V. Z., CHUDINOV, I. L.

"Optimizing Arrangement of Data in a Computer Memory"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 31-37 (from RZh-Kibernetika, No 5, May 73, abstract No 5V771 by the authors)

Translation: Formulations and algorithms are proposed for problems of distributing data blocks among storage devices of various speeds and on magnetic tape.

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USSR

YAMPOL'SKIY, V. Z.

UDC: 51

"Heuristic Algorithm for Solution of the Problem of Rational Distribution of the Graduating Departments of an Institution of Higher Education With Respect to Faculties"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 114-121 (from RZh-Kibernetika, No 5, May 73, abstract No 5V644 by the author)

Translation: A description is given of the problem of forming the staff of the faculties of a multidiscipline institution of higher education as a problem in classifying multidimensional objects with a target function which accounts for losses from discrepancy of objects in classes and dispersion of classes with respect to power. A heuristic algorithm is presented for solution of the problem based on dissociation into two stages: formation of a set of permissible variants of classification, and optimum selection from the set of a predetermined number of classes which do not contain inter-

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USSR

YAMPOL'SKIY, V. Z.

UDC: 519.2

"Accounting for Resources in Evaluating the Activity of Subdivisions of an Institution of Higher Education"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 107-113 (from RZh-Kibernetika, No 5, May 73, abstract No 5V389 by the author)

Translation: A method is presented for accounting for the potential possibilities of subdivisions in estimating the indices of their activity. The procedure is based on statistical analysis of the relation between results and generalized resources of subdivisions determined by the method of principal components.

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USSR

UDC 51

YAMPOL'SKIY, V. Z., MAKAROV, I. P.

"Algorithm for Solving a Classification Problem"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Investigation and Optimization of Systems -- collection of works), Kiev, 1971, pp 302-314 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V486)

Translation: The nonformalized statement of this problem has the following form. There are n objects of any nature each of which is characterized by a fixed set of parameters. It is necessary to group the objects in a series of subsets called classes. The classification criterion is minimization of a loss functional. In the general case it must consider both the losses from the difference of objects inside the classes and the losses connected with the number of classes also the losses caused by scattering of classes with respect to size. In addition, the solution of the problem can have additional restrictions imposed on it determined by the specific nature of the objects subject to classification. An example of this condition is giving the upper bound for the size of the classes.

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USSR

YAMROM, B. R.

"The Mean Number of Real Roots of a Random Algebraic Polynomial"

Vestn. Leningr. Un-ta [Leningrad University Herald], No 19, 1971, pp 152-156,
(Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No
3 V20 by K. Lat'shev).

Translation: It is proven that the mean number M_n of real roots of a poly-
nomial in the n th power with random coefficients $P_n(x) = \sum_{i=1}^n \xi_i x^i$, where
 ξ_i are independent, identically distributed, normal random quantities $E\xi_i =$
 $= 0 (i = 1, \dots, n)$, is represented as

$$M_n = \frac{2}{\pi} \log n + C + \gamma_n$$

where $C = \text{const}$ and $\lim_{n \rightarrow \infty} \gamma_n = 0$ and, furthermore

$$M_n - \frac{2}{\pi} \log n > -\frac{0.8}{\pi}$$

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UNCLASSIFIED

PROCESSING DATE--11DEC70

1/2 017
TITLE--MECHANISM OF THE REDUCTION OF THE PEROXIDE
ELECTRODE -U-
AUTHOR--(02)--YANSHCHIKOV, A.V., LEVIN, E.S.

COUNTRY OF INFO--USSR

SOURCE--ELEKTRIKHIMIYA 1970, 6(4), 588-90

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DROPPING MERCURY ELECTRODE, CHEMICAL REACTION MECHANISM,
CHEMICAL REDUCTION, PEROXIDE, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/F-RAME--3006/1294

STEP NO--UR/0304/70/006/004/0588/0590

CIRC ACCESSION NO--AP0134968

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0134968

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. H SUB2 O SUB2, CUMENYL HYDROPEROXIDE, AND TERT.BUOOH WERE REDUCED ON A DROPPING HG ELECTRODE IN HCONME SUB2. BU SUB4 HClO SUB4 WAS USED AS THE INDIFFERENT ELECTROLYTE AND PHENOL IN VARIOUS QUANTITIES WAS ADDED TO THE STUDIED SOLNS. THE PHENOL SERVED AS A PROTON DONOR. THE 3 PEROXIDES YIELDED ONLY 1 POLAROGRAPHIC WAVE, IN FAR NEG. POTENTIAL REGION. IN THE PRESENCE OF PHENOL THE DIFFUSION CURRENT CONST. WAS TWICE AS LARGE AS IN THE ABSENCE OF PHENOL. IN THE ABSENCE OF THE PROTON DONOR, THE PEROXIDE GROUPS GAVE ONLY 1 ELECTRON WAVE. AS THE AMT. OF PHENOL IN THE SOLN, INCREASED, THE HEIGHT OF THE WAVE INCREASED UNTIL IT REACHED A MAX. CORRESPONDING TO A 2 ELECTRON PROCESS. THE REDN. OF THE PEROXIDE GROUP CAN THUS BE REPRESENTED AS FOLLOWS: ROOH PLYS E YIELDS ROOH PRIME NEGATIVE, ROOH PRIME NEGATIVE PLUS H PRIME POSITIVE YIELDS ROH SUB2 YIELDS RO TIMES PLUS H SUB2 O; RO TIMES PLUS E YIELDS RO PRIME NEGATIVE.

FACILITY: NAUCH. ISSLED. INST. POLUPROD. KRASITEL., MOSCOW, USSR.

UNCLASSIFIED

Hydraulic and Pneumatic

USSR

UDC 534.232

ZHULIN, V. I., RIMSKIY-KORSAKOV, A. V., REKHTMAN, V. I., and
YAMSHCHIKOV, V. S., Acoustics Institute of the Academy of
Sciences USSR, Moscow; Moscow Mining Institute

"Hydropneumatic Low-Frequency Radiator"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 1, Jan-Feb 73,
pp 32-41

Abstract: A short review is presented of some works on hydro-acoustic and pneumoacoustic radiators recently appeared in technical and patent literature. Their working principle is described and theoretical considerations for the calculation of their main parameters are given. Results of experimental developments and the investigation of a low-frequency hydro-pneumatic radiator of harmonic signal, conducted by the chair "Acoustics and Ultrasonic Technology" of the Moscow Mining Institute together with the Acoustics Institute of the Academy of Sciences USSR, are discussed. The possibility is considered of practical utilization of the hydropneumatic low-frequency radiator in the industry. Eight figures, three formulas, nineteen bibliographic references.

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USSR

UDC 621.373.5

YAMSHCHIKOV, V. S., NOSOV, V. N., KAKORIN, B. M., Moscow "Order of the Red
Banner of Labor" Mining Institute

"A White Noise Generator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 4, Feb 72, Author's Certificate No 326699, Division H, filed 28 May 70,
published 19 Jan 72, p 207

Translation: This Author's Certificate introduces a white noise generator
which contains a noise source based on a stabilatron, a voltage stabilizer,
a voltage divider and a transistor. As a distinguishing feature of the
patent, the output impedance is reduced by connecting the input of the
stabilatron through a resistor to the emitter of the transistor, and through
a capacitor to the transistor base, which is connected to the voltage
stabilizer and to the collector of the transistor through the voltage
divider.

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1/2 017
UNCLASSIFIED
TITLE--MAGNETIC ROTATIONAL DISPERSION AND REFRACTIVE INDEX DISPERSION
CURVES OF LA PRIME3 POSITIVE IN AN AQUEOUS LANTHANUM CHLORIDE SOLUTION
AUTHOR--(021)-YAMSHCHIKOV, YE.F., SHUKUROVA, R.M.
PROCESSING DATE--27NOV70
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUL SSSR 1970, 191(4), 807-10.
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LANTHANUM CHLORIDE, REFRACTIVE INDEX, DIFFERENTIAL EQUATION,
INTEGRAL EQUATION, LANTHANUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1790
STEP NO--UR/0020/70/191/004/0807/0810
CIRC ACCESSION NO--AT0125402
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--ATO125402

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE RELATIONS BETWEEN THE
DISPERSION CURVES ARE CHECKED BY USING THE LA PRIME³ POSITIVE ION IN AN
AQ. SOLN. OF LACL SUB3 AS THE EXAMPLE. BECQUEREL'S DIFFERENTIAL AND
INTEGRAL FORMULAS WERE VERIFIED; THE COEFF. R (SERBER, 1932) IS EQUAL TO
0.24 IN BOTH FORMULAS. THE INTEGRAL FORMULA WAS FOUND MORE SUITABLE FOR
EXPTL. CHECKING AND GIVE A MORE RELIABLE RESULT IN DETG. R.
FACILITY: INST. OBSSHCH. BEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

KONOVALENKO, V. A., and ~~YAMSHANOV, V. A.~~, Scientific Research Institute
of Oncology imeni N. N. Petrov, Leningrad

"Dielectric Parameters of Human Blood Serum at Frequencies Ranging From
1 to 30 MHz"

Moscow, Biofizika, No 1, 1971, pp 265-269

Abstract: The dielectric parameters of human blood serum at frequencies ranging from 1 to 30 mg are determined mainly by the presence of salts. When the concentration of salts in the serum is decreased to 0.01 N NaCl, its dielectric parameters are determined by proteins. The Sel'kov-Balygin effect (change in the parameters of serum as a result of heating) does not take place within the above range of frequencies. No differences were found between the properties of heated and unheated serum from healthy donors. Serum from cancer patients was indistinguishable from that of healthy persons in the frequency range studied.

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USSR

UDC: 541.124/128

SOROKIN, M. F., and YAMSKIY, V. A.

"Kinetics of Reaction of Aminolysis of Methylbenzoate by Monoethanol Amine"

Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleeva (Works of the Moscow Chemical Technological Institute imeni D. I. Mendeleev), No 61, pp 107-110, 1969 (from Referativnyi Zhurnal Khimii, No 2, 25 Jan 70, Abstract No 2 B941)

Translation: The interaction of methylbenzoate (I) with monoethanol amine (II) in DMFA was investigated at 120°. The reaction has an autocatalytic nature, and its kinetics are described by the equation $V = k_1 \cdot [I] \cdot [II] + k_2 \cdot [I] \cdot [II] \cdot [X]$, where k_1 and k_2 are the rate constants of noncatalytic and autocatalytic reactions, equal to 10^{-5} and $3 \cdot 10^{-4}$ l/mol·sec respectively, $[X]$ is the concentration of β -oxyethylamide of benzoic acid, the end product of the interaction of I with II, resulting from autocatalysis of the reaction.

Yu. G. Afanasenkova

1/1

USSR

UDC 542.91:541.183.1+541.49

ROGOZHIN, S. V., DAVANKOV, V. A., and YALSKOV, I. A., Institute of Metal
Organic Compounds, Academy of Sciences USSR

"Synthesis and Properties of an Asymmetric Complexing Sorbent With L-Histidine"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,
pp 2325-2327

Abstract: An asymmetric complexing sorbent based on D-methionine bound to the macroreticular polystyrene skeleton through the α -amino group was synthesized by reacting chloromethylated copolymer with D-methionine methyl ether in a dioxane-methanol mixture at 60°. The reaction lasted 15 hrs, NaI being used as a catalyst. The sorbent showed high selectivity towards the sorption of metals: the pH values for decomplexing of Cu^{2+} , Ni^{2+} , and Zn^{2+} were 2.35, 6.30 and 6.50 respectively. It has been shown that this new sorbent treated with Cu^{2+} or Ni^{2+} salts is capable of separating optical isomers of proline, isovaline, isoleucine, allo-threonine and mandelic acid.

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CSO: 1841 -W

- END -

- 80 -

1/2 025
TITLE--INVESTIGATION OF IRON SUBLATTICES IN A SINGLE CRYSTAL OF THE
ORTHOERRITE TYPE SUB3 -U-
AUTHOR--(04)--KOCHAROV, A.G., LUSHMANOV, A.A., YAMZIN, I.I., CHERVONENKIS,
A.YA.
COUNTRY OF INFO--USSR
PROCESSING DATE--20NOV70
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1511-1517
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--CRYSTALLOGRAPHY, IRON OXIDE, MAGNETIC STRUCTURE, NEUTRON
SCATTERING
CENTRL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
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STEP NO--UR/0056/70/058/005/1511/1517
CIRC ACCESSION NO--AP0125522
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125522

ABSTRACT/EXTRACT--(U) GP-C-

ABSTRACT. THE BEHAVIOR OF THE ANTIFERROMAGNETIC STRUCTURE PRODUCED BY FE PRIME3 POSITIVE ION MOMENTS IN THE ORTHORHOMBIC COMPOUND $\text{TMFe}_2\text{SUB}_3$ IS INVESTIGATED BY THE ELASTIC MAGNETIC NEUTRON (λ EQUALS 1.07 ANGSTROM) SCATTERING AND TORQUE TECHNIQUES AT TEMPERATURES BETWEEN 78 AND 720 DEGREES K. THE NEEL TEMPERATURE OF THE IRON SUBLATTICES DETERMINED ON BASIS OF TEMPERATURE DEPENDENCE OF THE INTEGRAL MAGNETIC REFLECTION INTENSITIES IS 550 PLUS OR MINUS 50 DEGREES K. THE EXPERIMENTAL TEMPERATURE DEPENDENCE OF THE INTEGRAL INTENSITIES IS IDENTICAL WITH THE BRILLOUIN FUNCTION FOR THE GROUND SPIN STATE S SUB FIVE HALVES OF THE FE PRIME3 POSITIVE ION. AT 0 DEGREES K THE MAGNETIC MOMENT OF IRON IONS IS 4.68 PLUS OR MINUS 0.08 MU SUB B. IT IS SHOWN THAT THE ANOMALY OF THE TORQUES AT TEMPERATURES BETWEEN 103 AND 78 DEGREES K IS DUE TO REORIENTATION OF THE EASY MAGNETIZATION VECTOR AWAY FROM THE (001) DIRECTION TO THE (100) DIRECTION; AT 78 DEGREES K THIS REORIENTATION DOES NOT TERMINATE. CAUSES OF DISCREPANCIES BETWEEN THE EXPERIMENTAL AND CALCULATED FORM FACTORS FOR THE FE PRIME3 POSITIVE ION AT LARGE SCATTERING ANGLES ARE DISCUSSED. CAUSES OF THE SHIFT OF THE REORIENTATION TEMPERATURE INTERVAL IN MAGNETIC AND NEUTRON DIFFRACTION MEASUREMENTS ARE ALSO DISCUSSED. FACILITY: INSTITUT KRISTALLOGRAFI, AN SSSR.

UNCLASSIFIED

USSR

UDC 546.24

YANAKI, A. A., and OBOLONCHIK, V. A., Institute of Problems of Material, Science, Academy of Sciences, Ukrainian SSR

"Hydrogen Telluride Method for Preparing the Tellurides of Transition Metals"
Moscow, Neorganicheskiye Materialy, Vol 9, No 12, 1973, pp 2098-2102

Abstract: Metal tellurides which form stable hydrides may not be prepared from powdered metals. However, they may be prepared from the thermodynamically unstable oxides and salts by being reduced in an $H_2Te + H_2$ atmosphere. During this process, the stable hydrides are not formed. $MnTe_3$, $ReTe_2$, WTe_2 , and $MoTe_2$ were prepared from respective oxides. Cr_2Te_3 was prepared from $CrCl_3$, $VTe_{1.55}$, $NbTe_2$, and $TaTe_2$ were also prepared. Traces of a few different oxides, such as $ReTe_{2.61}$ and Mo_3Te_4 were present. Ta_2O_5 did not react to form the telluride. Several modifications are suggested for elements which do not react according to the normal scheme. Crystallographic data for the prepared tellurides were determined by x-ray analysis. The variations in composition as a function of temperature and reaction time were also measured.

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USSR

UDC 669.85/.86.051

OBOLONCHIK, V. A., and YANAKI, A. A.

"Method of Synthesis of Some Tellurides of Rare Earth Metals"

V sb. Kal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev, "Naukova Dumka", 1970, pp 141-148 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G163)

Translation: The possibility of obtaining La, Ce, Dy, and Tu tellurides from their chlorides is studied. It is assumed that rare earth metals form only from dichlorides. The process of formation of Ce, Sm, Eu, and Yb from more easily available trichlorides flows according to the proposed diagrams:
 $2\text{MeCl}_3 + \text{H}_2 \rightarrow 2\text{MeCl}_2 + 2\text{HCl}$; $\text{MeCl}_2 + \text{Te}(\text{H}_2\text{Te}) + \text{H}_2 \rightarrow \text{MeTe} + 2\text{HCl}$. Equally, the following reaction takes place $\text{MeCl}_3 + \text{Te}_r(\text{M}_2\text{Te}) + \text{H}_2 \rightarrow \text{Me}_x\text{Cl}_y - \text{Te}_2 + \text{HCl}$. Stoichiometric tellurides can be obtained while attaining temperature of the instability of $\text{Me}_x\text{Cl}_y\text{Te}_2$. The remaining rare earth metals, with the exception of Tu, form stable compounds of the type $\text{Me}_x\text{Cl}_y\text{Te}_2$. It is assumed that at the temperature $>1100^\circ$ these compounds are unstable and will create a possibility of obtaining rare earth metal tellurides. However, such an assumption will have to be verified. 2 ill., 1 table, 8 bibl. entries. S. Krivosova

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USSR

KONIN, A. M., POZHELA, Yu. K., and YANAVICHENE, N. Yu. (Institute of the Physics of Semiconductors, Lithuanian Academy of Sciences)

"Galvanomagnetic Recombination Effect in an Inhomogeneous Magnetic Field"
Vilnius, Litovskiy Fizicheskii Sbornik, No 3, 1973, pp 393-399

Abstract: An intrinsic semiconductor in a homogeneous magnetic field changes its resistance as a consequence of the redistribution of the current carriers along the cross section of a sample having different surface recombination rates on opposite sides, one of them being low. Carrier redistribution takes place at a distance λ_0 of the diffusion length.

In an inhomogeneous magnetic field a change in resistance takes place when the surface recombination rates on both sides are high.

In this paper the authors solve the problem for the case of weak fields and a linear variation of the magnetic field. It is shown that the change in concentration in this case occurs not only at a distance from the sides of the sample but also along its entire cross section. The change in resistance takes place also when the surface recombination rates on both sides are high.

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USSR

KONIN, A. M., et al., Litovskiy Fizicheskiy Sbornik, No 3, 1973, pp 393-399

The experimental qualitatively confirms the calculations: 1) the change in resistance takes place only in the presence of grad H ; 2) it increases with an increase in the thickness of the sample.

USSR

YANAYT, Yu. A., ABAKUMOV, G. A., KROMSKIY, G. I., SIMONOV, A. P., FADEYEV, V. V.,
and KHOKHLOV, R. V., Moscow State University imeni M. V. Lomonosov and The
Physico-Chemical Institute imeni L. Ya. Karpov

"Generation in the Ultraviolet Band With Frequency Tuning in a Paraterphenyl
Solution Excited by a Flash Bulb"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13,
No 11, 5 Jun 71, pp 616-619

Abstract: This article discusses generation with fine tuning in the wavelength
of 330-350 nm in a paraterphenyl solution excited by a flash bulb. One of the
real problems in quantum electronics is the design of a frequency-tunable la-
ser in the ultraviolet band of the spectrum. The authors show the broad pos-
sibilities here of using organic compounds as the active media especially
paraterphenyl, which is found to be the best compound for producing tunable
lasers in the ultraviolet band pumped by flash bulbs. The experimental pro-
cedures are discussed and the results are given in the form of an oscillogram
and a table, which gives the threshold values and the limits of frequency tun-
ing. The low values of the threshold energies for exciting the solutions shown
in this table indicate that this pumping system is also effective for exciting
a large number of other organic compounds. 1 figure, 1 table, bibliography of
3 titles.

1/1

USSR

UMIDOVA, Z. I., Corresponding Member, Academy of Medical Sciences USSR,
and YANBAYEVA, Kh. I., Doctor of Medical Sciences, Chair of Hospital
Therapy, Tashkent Medical Institute

"Hot-Climate Cardiology"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 34-39

Abstract: Work conducted in this field in Uzbekistan is reviewed. The significance of heart and cardiovascular diseases has been recognized, and prophylactic measures have been instituted on a government level. The relationships between heart disease and the social, physical, and biological environment have been studied by Soviet cardiologists. Difficulties were encountered in the choice of proper population samples from various parts of the Soviet Union for these studies. In the first stage of the investigation, arterial hypertension, coronary arteriosclerosis and myocardial infarct, and rheumatic fever were studied for many years by researchers in Uzbekistan. Statistical analysis of the data collected indicated widespread cardiovascular diseases in that region, but with a somewhat lesser frequency than in regions of a more moderate climate. A
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USSR

UMIDOVA, Z. I., and YANBAYEVA, Kh. I., Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 34-39

study of the epidemiology of ischemic diseases was more difficult. It was found that the native population tends to have ischemic heart disease less frequently than the non-native population, and the disease arises 10 years later in individuals. Comparative studies between rural and urban populations showed that arterial hypertension has a higher frequency in the urban population. The blood cholesterol level was found to be higher in persons in intellectual occupations requiring little physical exertion. Blood cholesterol level, considered to be an indicator of disturbances in lipid and protein metabolism, is frequently independent of the food intake. The less frequent occurrence of heart disease in the native population has nonetheless been attributed to vegetable fats in the food of the people. The climate has a profound effect on the wellbeing of both healthy and sick people, particularly when adaptation mechanisms are impaired. Cooperation of doctors and other scientists is required in studying various climatic and geographic effects. An increase in the number of heart attacks was found in the fall and winter, blood circulation was poorer, and rheumatic fever was aggravated in many cases. The

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USSR

UMIDOVA, Z. I., and YANBAYEVA, Kh. I., Meditsinskiy Zhurnal Uzbekistana,
No 10, Oct 70, pp 34-39

findings indicate that the long, dry, sunny period in summer, the availability of fruits and vegetables (natural sources of vitamin C and potassium salts), and the adaptability of the body affect cardiovascular patients favorably and that the network of cardiovascular sanatoria in Uzbekistan should therefore be enlarged.

USSR

UDC: 518.5:681.3.06

YANBYKH, G. F., TRIGUB, V. F.

"Optimizing a Communications Network for a System of Centralized Data Processing"

V sb. Mat. metody issled. i optimizatsii sistem. Vyp. 5 (Mathematical Methods of Studying and Optimizing Systems--collection of works, No 5), Kiev, 1970, pp 87-99 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V766)

[No abstract]

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USSR

UDC: 51:330.115

YANBYKH, G. F., GASANOV, S. S., KOZLOV, V. I.

"Optimizing the Structure of an Automated System for Selling Airplane Tickets"

V sb. Tekhn. kibernetika. Vyp. 16 (Technical Cybernetics--collection of works, No 16), Kiev, 1970, pp 57-65 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V671)

[No abstract]

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USSR

UDC 669.295.004.2

BELOSKURSKAYA, G. I., IBRAYEVA, M. Zh., YANCHANFU, L. V., and SABDENOVA, Sh. S.

"The Problem of the State of Health of Workers in the Titanium Industry"

Tr. In-ta krayev. patol. KazSSR (Works of the Institute of Regional Pathology, Kazakh SSR), 1970, 19, pp 228-230 (from Zh Metallurgiya, No 1, 71, Abstract No 16196 by A. Tseydler).

Translation: A total of 297 men and 56 women working in titanium production were examined. Diseases noted included: diseases of the upper respiratory tract (26.4%), influenza (21.2%), angina (19.5%). The complaints of the workers during the examinations were distributed as follows: increased fatigue and general weakness 33.1% frequent headaches and dizziness, 37.1%, increased perspiration, 27.8%, insomnia, 14.4%, tussis 28.3%. No significant pathology of the cardiovascular system was noted. The conclusions are not final. Further dynamic observations are continuing.

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USSR

UDC 621.382.2:546.28

SOPRYAKOV, V.I., YUKHNEVICH, A.V., YANCHENKO, A.N.

"Structure Of Forward Branch Of Current-Voltage Characteristics Of Silicon Diodes Irradiated By Gamma Quanta"

V sb. Radiats. fiz. nemet.kristallov. T. 3, Ch. 2 (Radiation Physics Of Non-metallic Crystals. Vol 3, Part 2 -- Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 193-196 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B188)

Translation: The results are presented of measurements of the current-voltage characteristics (CVC) of silicon semiconductor diodes irradiated by Gamma quanta Co^{60} . The CVC was measured in a current generator regime. The semiconductor diodes were prepared from n-type Si; $\rho = 15 \text{ ohm.cm}$, the O_2 content of which amounted to $>10^{17} \text{ cm}^{-3}$ and $< 2 \cdot 10^{16} \text{ cm}^{-3}$. The p-n junction was formed by fusion of Al; the junction area amounted to $(1 - 2) \cdot 10^{-2}$, and the thickness of the base equalled 20 - 150 micrometers. With fluxes $> 5 \cdot 10^{16} \text{ cm}^{-2}$ and a temperature of 80° K at the forward branches of the CVC, in addition to an increase of the diffusion resistance, there were also located sections of negative curvature, which with an increase of the flux up to $(1 - 2) \cdot 10^{17} \text{ cm}^{-2}$, were transformed

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USSR

SOPRYAKOV, V. I., et al., Radiats. fiz. nemet.kristallov. T. 3, Ch. 2
(Radiation Physics of Nonmetallic Crystals. Vol 3, Part 2 -- Collection Of
Works), Kiev, "Nauk.dumka," 1971, pp 193-196 (from RZh--Elektronika i yeye
primeneniye, No 12, Dec 1971, Abstract No 12B188)

into sections of negative resistance, and with increase of the flux into hysteresis loops. A difference is noted in the behavior of semiconductor diodes prepared from Si with different O_2 contents at temperatures of 80 and 300° K. These peculiarities are connected with nonuniformity of distribution of the doping and compensating impurities in the initial p-n junction. Formation of the hysteresis loops was simulated by a parallel connection of a semiconductor diode with ordinary CVC and with the presence of a section of negative resistance.2 ill.3 ref. V.S.

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USSR

UDC: 621.643:666.293.012

ROMANENKO, A. A. and YANCHENKO, N. G.

"Defectoscope ID-1M for Controlling the Smoothness of Glass-Enamel Coatings on the Inner Surface of Tubes"

Sverdlovsk, Defektoskopiya, No. 4, 1970, pp 112-117

Abstract: With the rapid growth of the chemical industry, there is increased need for piping with protected inner surfaces. Hence the need for the ID-1M, developed by the VNITI (All-Union Scientific Research Institute for Pipes) for quality control of inner pipe lining. The instrument's operation is based on the electric search method for punctures in the lining. For control, the instrument uses movable search heads which can be inserted into the tube at the end of a metallic rod. The instrument is equipped with optical and sonic signalling which act the moment a defect is discovered. A schematic of the instrument, a detailed description, and a list of its specifications are given. The authors are associated with the VNITI in Dnepropetrovsk.

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USSR

UDC: 621.375.7.029.6

VENDIK, O. G., DAKHNOVICH, A. A., RUBAN, A. S., TER-MARTIROSYAN, L. T.,
YANCHENKO, Yu. F.

"A Cooled Parametric Amplifier on Strontium Titanate"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1981-1983

Abstract: The paper gives the results of an experimental study of a two-circuit regenerative mavar for reflection with a planar nonlinear capacitor based on a strontium titanate thin film. The current-voltage characteristic of the capacitor is given. The signal frequency in the amplifier was 1.78 GHz, and the pumping frequency was 5 GHz. The amplifier was made in the coaxial strip version. The nonlinear capacitor was connected in a break in the central conductor of the strip line. As a distinguishing feature of the design, the energy from the pumping oscillator and the signal are sent to the same coaxial input. Separation is by a filter. Tests were done in a cryostat at 77 kelvins. The coaxial Y-circulator was located outside the cryostat. Losses in the input circuits including the circulator amounted to 1.0 dB; losses in the output circuits were 3 dB. At an amplification factor of 15 dB, the band of the proposed mavar was 12 MHz. The

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VENDIK, O. G. et al., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72,
pp 1981-1983

pumping power consumption was no more than 500 mW. The calculated noise
temperature was 200 K, and measurements gave 320 K. The authors thank
V. V. Smirnyy for furnishing the crystal specimens.

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- 2 -

USCP

UDC 541.135.1;541.133;537.311.35

KOPYLOV, YU. A., YANCHENKO, V. YA.

"Regeneration Laws of Current Carriers in Organic Semiconducting Liquids. II. Concentration Dependencies of the Current and Regeneration in Binary Systems"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 174-176

Abstract: A study was made of the possibility of improving the degree of regeneration of current carriers in the total electrical conductivity of working fluids by creating binary systems. The concentration dependencies of the current and carrier regeneration in various binary systems were studied for 14 organic fluids with different physical-chemical properties (ethyl bromide, ethyl iodide, amyl chloride, amyl bromide, iso-amyl chloride, bromobenzene, iodobenzene, cyclohexanone, N-heptyl bromide, N-heptyl iodide, o-bromanizene, N-octyl iodide, N-nonyl iodide, and triacetone). A study was made of more than 150 systems by the previously described procedure [Yu. A. Kopylov, Izv. vyzov. Fizika, No 4, 129, 1970]. The volumetric component, the electrode component, the maximum current and the degree of regeneration were plotted from these data as functions of concentration for all systems. The creation of binary systems does not improve the degree of regeneration. The greatest and most stable degree of regeneration occurs usually in individual liquids with 1/2

USER

KOPYLOV, YU. A., et al., Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972,
pp 174-176

low specific electrical conductivity -- no more than $10^{-6} \text{ ohm}^{-1} \cdot \text{cm}^{-1}$ (cyclo-
hexanone, ethyl bromide).

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Electrochemistry

U3SR

UDC 537.311.35:541.135.1

KOPYLOV, YU. A., and YANCHENKO, V. YA., Dnepropetrovsk Agricultural Institute
"Some Properties of Electrolytic Deposits in Organic Semiconducting Liquids"

Moscow, Zhurnal Fizichskoy Khimii, Vol 46, Vyp 8, 1972, pp 1948-1951

Abstract: Conductivity dynamics of 28 organic semiconducting liquids and 17 binary systems were compared with visible electrode deposits. Both pure liquids and binary systems that regenerate current carriers at the point of maximum conductivity, reached after the polarity is reversed, and liquids in which a point of maximum conductivity is not attained were selected. It was found that overall conductivity decreases as the liquids free ion concentration is reduced and the ions are deposited on the cathode. When the polarity is reversed this electrode if freed of the deposited ions, conductivity increases to a maximum, and then decreases as ions are deposited on the opposite electrode. Organic liquids exhibiting such a response to polarity reversal are termed metastable. It was concluded from visual observations that the amount of deposits depends directly on a liquid's conductivity. Metastable deposits are dendritic, and the deposition rate depends directly on applied voltage and temperature. When current-carrier regeneration is unipolar the cathode (before reversion) is entirely freed of

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USSR

KOPYLOV, YU. A., and YANCHENKO, V. YA., Zhurnal Fizichskoy Khimii, Vol. 46, Vyp 8, 1972, pp 1948-1951

deposit: when current-carriers of both polarities are regenerated (eg isobutyl bromide), polarity reversal causes changes in deposit structure. Liquids in which current-carrier regeneration does not occur at maximum current (eg ethyl iodide) produce spherical cathode deposits that disappear with time. Upon reversal of polarity the electrode is quickly freed of such deposits. Deposits are barely noticeable with such binary systems as triacetin +10% phenyl iodide, though a point of maximum conductivity does occur. Pure benzene bromide forms no deposits, while addition of 10% amyl chloride causes deposits of the cathode. Spectral analysis of the hard deposits suggests that they are formed by electropolymerization and are composed of long polymer chains with conjugated systems.

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- 17 -

USSR

UDC: 621.375.7

DAKHNOVICH, A. A., RUBAN, A. S., TER-MARTIROSYAN, L. T., YANCHENKO, Yu. F.

"Development of Parametric Microwave Amplifiers on a Nonlinear Dielectric"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering Institute), 1972, vyp. 101, pp 33-40 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D263 [résumé])

Translation: There has recently been a considerable increase of interest in nonlinear dielectrics as applied to parametric amplifiers in the SHF range. The prospects for paramps on a nonlinear dielectric are associated with a number of their advantages over paramps on semiconductors: intrinsically higher reliability, greater dynamic range, looser requirements for stability of the pumping level, etc. The development of such amplifiers involves a number of specifics stemming from the particular properties of ferroelectric materials. A particularly important role in this regard is played by the problem of ensuring effectiveness of heat removal from the nonlinear capacitor heated by the pumping oscillations. The paper gives the results of an experimental study of certain amplifiers with elements of VK7 ferroceramic and crystalline strontium titanate. An amplification of 20 dB is achieved in the continuous mode in a one-loop amplifier on

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USSR

DAKHNOVICH, A. A. et al., Izv. Leningr. elektrotekhn. in-ta, 1972, vyp. 101, pp 33-40

crystalline strontium titanate with pumping on 2 GHz and cooling with liquid nitrogen. Nine illustrations, bibliography of twenty titles.

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USSR

UDC 513.6

PLATONOV, V. P., Academician of the Academy of Sciences Belorussian SSR, and
YANCHEVSKIY, V. I., Institute of Mathematics, Academy of Sciences Belorussian
SSR, and Belorussian State University imeni V. I. Lenin, Minsk

"The Structure of Unitary Groups and the Commutant of a Simple Algebra Over
Global Fields"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 541-544

Abstract: Let V be an n -dimensional linear space (right) over a finite-dimensional body D . ϕ is a nondegenerate skew-hermitian form on $V \times V$ with respect to some involutory antiautomorphism $j: d \rightarrow \bar{d}$ of the body D . $S = \{d \in D \mid \bar{d} = d\}$ is a subset of symmetric elements of D . If K is the center of D , then $\dim_K D = m^2$ and it is assumed that $k = K \cap S \neq K$: i.e., j is an involution of the second kind. In the case of $\text{char } K = 2$, as usual, it is considered that

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USSR

PLATONOV, V. P., and YANCHEVSKIY, V. I., Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 541-544.

$$\forall v \in V \quad \exists \lambda(v) \in D: \Phi(v, v) = \lambda(v) - \overline{\lambda(v)}.$$

$U(\phi)$ is the unitary group of form ϕ ; $TU(\phi)$ is a subgroup of $U(\phi)$ generated by transvections. $GL(n, D)$ is a full linear group over D ; $SL(n, D)$ is a subgroup of elements with a reduced norm equal to one. $SU(\phi) = SL(n, D) \cap U(\phi)$. It is assumed that index $\phi > 0$.

The known hypothesis about the groups $SL(n, D)$ and $SU(\phi)$, contained in the Kneser-Tits general hypothesis about simply-connected algebraic groups, is as follows: the groups $SL(n, D)$, $n > 1$, and $SU(\phi)$ are generated by transvections, or (what is equivalent) the factors of these groups along the center are simple abstract groups. The hypothesis for $SL(n, D)$ is equivalent to

2/3

USSR

PLATONOV, V. P., and YANCHEVSKIY, V. I., Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 541-544

the statement: the commutant $GL(1,D)$ coincides with $SL(1,D)$. For $SU(\phi)$ everything is also reduced to a certain hypothesis on the structure of a body D with involution.

At the present time the hypothesis for $SL(n,D)$ has been proved for p -adic fields and algebraic number fields, the hypothesis for $SU(\phi)$ only for p -adic fields. The purpose of the article is to prove the hypothesis for any global fields. The fundamental theorem is: Over global field K the group $SU(\phi) = TU(\phi)$ i.e., is generated by transvections and is the commutant of the group $U(\phi)$. The proof of this theorem essentially depends on proving the hypothesis for $SL(n,D)$. In particular, the hypothesis for $SL(n,D)$ must be proved for a functional global field. This is done by a slight modification of WANG's reasoning, using the theory of class fields for functional fields.

3/3

Acc. Nr: **AP0052316**

Ref. Code: **UJ0428**

PRIMARY SOURCE: *Fiziologicheskii Zhurnal*, 1970, Vol 16, No 3, pp **257-264**

ON AFFERENT INTERCENTRAL CONNECTIONS OF CEREBELLAR CORTEX

N. V. Bratus, G. V. Yanchik

Department of Physiology, Medical Institute, Vinnitsa

Summary

Evoked potentials (EP) of cerebellar cortex were studied in cats anaesthetized with thyopental on stimulation of spinal cord (rostral spino-serebellar tract), n. ruber, hypod-thalamus posterior (corpus mammilaris).

EP occurred on stimulation of spinal cord at a depth of 500 μ and more, the threshold reached 1 V. In focus maximal activity (FMA) of cerebellar cortex (culmen, l. simplex, tuber vermis) EP were expressed by a monophasic electropositive wave with latency of $7.5 \pm 1.6 - 10.8 \pm 1.3$ msec (in dependence on the stimulation level C_4 or T_6) when stimulating deeper structures, to 2000 μ , EP augmented in amplitude and duration with appearance of additional components complicating an electropositive phase. Around FMA EP were expressed with augmented latency and unconstant form.

REEL/FRAME
19820897

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AP0052316

When stimulating of n. ruber EP occurred in these regions of cerebellar cortex with better expressions on contralateral side to stimulation. The threshold reached 3—6 V. A two-phase potential was a basis of EP, probably, with additional components in FMA, EP of paramedian lobes were characterized by initial negativity. The latency reached 5.1 ± 1.7 — 9.3 ± 0.5 msec in dependence on the region of leading.

On stimulation of corpora mamillares EP occurred in paleocerebellar areas of cerebellum and are absent in hemispheres. The threshold reached 3—6 V. FMA coincided with one in preceeded series, but EP were expressed equally bilaterally, except for paramedian lobe, where EP expressed better on ipsilateral side. The peculiarity of these EP consisted in improvement of expression of distinctive electropositive components and even electronegative ones. Latency reached 6.3 ± 0.3 — 8.3 ± 0.4 msec.

A conclusion was drawn, that peculiarities of cerebellopetal intercentral connections manifested on timed characteristics of EP and expression of its components only, but not the form of EP.

2/2

ldh

19820898

Transformation and Structure

USSR

UDC 669.15.018.2:620.182

YANCHISHIN, F. P., and BARANETSKIY, V. S., Institute of Physico Mechanics
of the Academy of Sciences, Ukrainian SSR, L'vov

"Study of the Structure and Properties of Pre-Loaded Kh18N10T Steel During
Extension"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 38-43

Abstract: Results are presented from a combined study of the structure and properties of pre-loaded Kh18N10T steel during active extension. The processes of deformation in the metal during short-term extension of specimens are arbitrarily divided into three periods, and the nature of the change in physical-mechanical properties and kinetics of the change in structure are studied in each of the three periods as functions of the level of preliminary loading. Preliminary static loading of specimens which had been polished to class 11 surface smoothness by electropolishing in a solution of 60% orthophosphoric acid was performed for 100 hours in air at room temperature on the same device later used for rapid extension. The three periods of extension were from the beginning of application of load to a point corresponding to 20% residual deformation, then from that point to the point of maximum force, then from that point to the rupture point.

1/1

USSR

UDC: 620.178.38

MAKSIMOVICH, G. G., DROZD, N. P., YANCHISHIN, F. P., and KUDLAK, S. M.,
Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR, L'vov

"Effect of Vacuum on the Structure and Certain Mechanical Characteristics of
O8kp Steel"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, No 2, 1971, pp 115-118

Abstract: Results are presented of a study of the effect of a vacuum of 10^{-6} , 10^{-5} , and 10^{-3} torr on the structure, hardness, and ductility of O8kp steel subjected to long-term loading at high temperatures (400, 600, and 800° C). The experiments showed that at high temperatures, the ductility of specimens tested under identical conditions at 10^{-6} torr was somewhat greater than at 10^{-3} torr. The hardness of the specimens which did not rupture during the 500 hours of the test at high temperatures under a vacuum of 10^{-6} torr was less than the hardness of specimens tested under the same conditions at 10^{-3} torr. The long-term strength of specimens at high temperatures and 10^{-6} torr decreases similarly. The increased ductility of specimens at high temperatures and high vacuum is explained by the less intensive process of oxidation of specimens. The higher values of hardness and long-term strength at the lower vacuum may result from more significant oxidation of the surface layers of the metal than at 10^{-6} torr.

1/1

172 018
UNCLASSIFIED
TITLE--STRUCTURE AND PROPERTIES OF STEEL 08KP AFTER PRELIMINARY LOADING
UNDER STRAIN -U-
AUTHOR--(04)-MAKSIMOVICH, G.G., YANCHISHIN, F.P., MOSEYCHUK, V.I.,
BARANETSKIY, V.S.
COUNTRY OF INFO--USSR
SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 6(1), 19-25
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALLOY DESIGNATION, STRAIN, MECHANICAL PROPERTY, ELECTRIC
RESISTANCE, RESISTIVITY, RIMMED STEEL, LOW CARBON STEEL/(U)08KP RIMMED
STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0401
STEP NO--UR/0369/70/004/001/0019/0025
CIRC ACCESSION NO--AP0126156
UNCLASSIFIED

1/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--EFFECT OF MOLECULAR STRUCTURE ON THE ADSORPTION AND
ELECTROOXIDATION OF ALIPHATIC ALCOHOLS -U-
AUTHOR--(05)-VASILYEV, YU.B., YANCHUK, B., NIKOLOV, I., BESKUROVAINAYA,
S.S., BAGOTSKIY, V.S.
COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(4), 597-601

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, ALIPHATIC ALCOHOL, MOLECULAR STRUCTURE,
DEHYDRATION, ELECTROCHEMICAL EFFECT, OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1293

STEP NO--UR/0364/70/006/004/0597/0601

CIRC ACCESSION NO--AP0134967

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126156

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. A STUDY OF THE EFFECTS OF THE
PRELIMINARY LOADING UNDER STRAIN ON THE STRUCTURE AND PROPERTIES OF
STEEL AT 930DEGREES IN VACUUM AND FURNACE COOLED AND POLISHED SPECIMENS;
PRELIMINARY LOADING WAS CARRIED OUT IN AIR AT ROOM TEMP. BY APPLYING
STRAINS SIGMA SUBP EQUALS 0, 5, 10, 15 AND 25 KG-MM PRIME2 DURING 100
HR. THE STRUCTURE OF THE PRELIMINARY LOADED SPECIMENS DIFFERS FROM THAT
OF THE INITIAL (NONLOADED); FERRITE GRAIN SIZE IS DECREASED; NEW
SUBGRAIN BOUNDARIES ARE FORMED, AND THE SLIP BANDS ARE VISIBLE. VICKERS
HARDNESS REMAINS FOR SIGMA SUBP SMALLER THAN 10 KG-MM PRIME2 PRACTICALLY
UNAFFECTED WHILE FOR SIGMA SUBP GREATER THAN 10 KG-MM PRIME2 IT
INCREASES AND FOR SIGMA SUBP EQUALS 25 KG-MM PRIME2 REACHES AN INCREASE
OF 35PERCENT. ELEC. RESISTIVITY FOR SMALL SIGMA SUBP (SMALLER THAN 10
KG-MM PRIME2) DECREASES AND REACHES A MIN. (SIMILAR TO 3PERCENT), BUT
RISES WITH FURTHER INCREASE OF SIGMA SUBP. PRELIMINARY LOADING WITH
SIGMA SUBP EQUALS 25 KG-MM PRIME2 INCREASES ALSO THE TENSILE STRENGTH
27PERCENT AND YIELD STRENGTH 54PERCENT. THE STRUCTURE OF THE
PRELIMINARY LOADED SPECIMENS IN THE FRACTURE ZONE IS FINE GRAINED WHILE
FOR THE INITIAL (NONLOADED) SPECIMENS THE STRUCTURE IS COARSE GRAINED.
FACILITY: FIZ.-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134967

ABSTRACT/EXTRACT--(U) GI-O- ABSTRACT. ME TO HEXYL ALIPHATIC ALCS. WERE STUDIED. THE ADSORPTION OF THESE ALCS. ON SMOOTH PT AT LOW TEMP. (25DEGREES) IS RELATED TO A LOSS OF 2 H ATOMS LOCATED NEAR THE ALPHA,C. BRANCHING OF THE MOLLS. OR THE PRESENCE OF CONSTITUENTS AT THE ALPHA,C. LOWERS THE ADSORPTION. THE ADSORPTION AT LOWER TEMPS. RESULTS FROM DEHYDROGENATION AT THE ALPHA,C, THAT AT 50-80DEGREES FROM DEHYDROGENATION OF THE RADICALS OF THE MOL., AND THAT AT 90-100DEGREES BY VIRTUE OF C C BOND BREAKING. THE POLARIZATION CURVES OF ELECTROOXIDN. OF THE ALCS. SHOW THAT THE MAX. UNSTEADY STATE CURRENT IN ALL CASES CHANGED WITH THE ELECTRODE COVERAGE. GENERALLY, AS THE CHAIN OF THE ALC. LENGTHENED, THE RATE OF DEHYDROGENATION AS WELL AS THE RATE OF ELECTROOXIDN. DECLINED.

FACILITY: INST. ELEKTROKHIM.,

MOSCOW, USSR.

UNCLASSIFIED

1/2 015
TITLE--HYDROGEN ADSORPTION BY PALLADIUM IN HYDRAZINE ELECTROOXIDATION -U-
AUTHOR--(02)-KEROVIN, N.V., YANCHUK, B.N.
COUNTRY OF INFO--USSR
SOURCE--ELECTROCHIM. ACTA 1970, 15(4), 569-80
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTIC OXIDATION, HYDROGEN, PALLADIUM, HYDRAZINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1130
CIRC ACCESSION NO--AP0128557
UNCLASSIFIED

PROCESSING DATE--13NOV70
STEP NO--UK/0000/70/015/004/0569/0580

2/2 015

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128557

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY DETG. THE POTENTIAL OF THE DIFFUSION SIDE OF THE MEMBRANE AND BY ELECTROOXID. OF H DIFFUSING TO THAT SIDE IN CASE OF HYDRAZINE ELECTROOXID. ON THE CONTACT SIDE, AS WELL AS BY TAKING THE CHARGING CURVES AFTER HYDRAZINE ELECTROOXID., AND MULTIPLE WASHINGS OF THE ELECTRODE, IT HAS BEEN ESTABLISHED THAT IN HYDRAZINE ELECTROOXID. PD SORBS H. THE AMT. OF H SORBED CAN INCREASE WITH ANODIC POLARIZATION. H IS PRESENT IN PD AFTER HYDRAZINE ELECTROOXID. AT HIGH POS. POTENTIALS (SMALLER THAN OR EQUAL TO 1.0 V). H IS AN INTERMEDIATE PRODUCT OF HYDRAZINE ELECTROOXID. HYDROGEN IS PROBABLY PRODUCED AS A RESULT OF DECOMP. OF INTERMEDIATE RADICALS FORMED IN HYDRAZINE ELECTROOXID. FACILITY: MOSCOW POWER INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.234.1 + 547.241 + 541.127

SHANDRUK, M. I., YANCHUK, N. I., and GREKOV, A. P., Institute of the Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSR

"The Structure and Reactivity of Hydrazine Derivatives. XXXII. Reaction Kinetics of Diarylphosphinic Acid Hydrazides With Picryl Chlorides in Benzene"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (195), No 10, Oct 73, pp 2198-2202

Abstract: The reaction kinetics of diarylphosphinic acid hydrazides with picryl chloride in benzene has been investigated at various temperatures. The reactions are quantitative and are described by a second order equation; energy parameters for these reactions have been calculated. The effect of the substituents in a molecule of diphenylphosphinic acid hydrazide on its reactivity can be described by Hammett's equation using the σ_p constants. The constants of the acid (pK_{a2}) and base (pK_{a1}) ionizations have been determined. Band vibration frequencies for NH and P=O groups have been determined.

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- 37 -

USSR

UDC 547.234.1 + 547.241

SHANDRUK, M. I., YANCHUK, N. I., and GREKOV, A. P., Institute of the Chemistry of High Molecular Compounds, Academy of Sciences, Ukrainian SSR

"Hydrazides of the Phosphinic and Phosphoric Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2194-2198

Abstract: New phosphoric acid hydrazides have been obtained by the reaction of hydrazine hydrate and ethylhydrazine with diarylphosphinic, 0,0-diarylphosphoric and 0,0-diarylthiophosphoric acid chlorides. The reaction of phosphoric acid chlorides with ethylhydrazine, the reagents taken at a 1:2 molar ratio, occurs in benzene attacking the α -nitrogen atom, with the formation of α -ethyl substituted hydrazides.

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USSR

UDC: 681.3.06:51

YANCHUK, V. I., YASHARKIN, Yu. K.

"Use of a Logic Operation of Comparison to Formalize the Recording of Algorithms for Accounting Jobs"

Tr. N.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo
(Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1971, vyp. 6, pp 39-52 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V940)

Translation: The article demonstrates the use of the logic operator of comparison $(a_1, a_2) = \begin{cases} 1, & \text{if } a_1 = a_2 \\ 0, & \text{if } a_1 \neq a_2 \end{cases}$ to formalize the recording of an algorithm

for an actual accounting job -- "Accounting for Influx of Semifinished Goods" solved under conditions of the operation of the system for automatic management of the Tatmekhob'yedineniye Amalgamation. A distinguishing feature of the described algorithm is that it formalizes not only the recording of arithmetic operations, but also the recording of operations involving transformation of the information structure (sorting, selecting, regrouping, etc.). V. Mikheyev.

1/1

YANCHUR, V. P.

NEUTRON DIFFRACTION ANALYSIS OF NIOBIUM NITRIDE Nb_4N_3

UDC 663.24:292.620.163.46

Article by A. Yu. Chernyakov, V. A. Schemlov, Ya. S. Umanets, S. Sh. Shil', etc.
 Yanchur, V. P., Yanichur, Viktor Stepi and Aliya Institute, Department of X-ray
 Spectroscopy and the Physics of Metals; Ordzhonikidze, Izvestiya Vsesoyuznogo Nauchno-
 issledovatskogo tsentra, No. 3, 1971, submitted 5 February

In recent years, a large number of phase transitions of the order-disorder type have been detected in solid interstitial solutions accompanied by the formation of HxX [1], Me_2X [2], Me_3X [3], and other superlattices. This fact offers the possibility of solving the problem of whether some of the interstitial phases with a composition close to stoichiometric for the mentioned base. A series of data are in favor of this point of view. For example, in reference [3], the neutron diffraction method was used to detect a high-temperature phase transition in Me_3X carbides ($Me = Nb, Ta$), which permits consideration of the lattices of these compounds as superlattices occurring from a disordered deduction solid solution on the basis of the chemical compound MeX with an HxX type lattice. These superlattices have cubic symmetry and are antiferromagnetic to Nb_4N_3 . It is of interest to discover to what degree the indicated arguments are also valid for other interstitial phases with close stoichiometry.

In particular, Briener and Jander [4] demonstrated by the x-ray method for Nb_4N_3 that the metal atoms in the Nb_4N_3 form a tetragonal lattice with $c/a \approx 0.98$. Terzo [5] used electron diffraction to discover the existence of superlattice peaks, and on the basis of analysis of the extinguishing law, he proposed an Nb_4N_3 model. The experimental and theoretical values of the intensity were not compared in [5]. Accordingly, the purpose of this experiment was more precisely to define the lattice of Nb_4N_3 and study its possible variation with a rise in temperature by means of neutron diffraction — the most reliable method of localizing the light atoms in the presence of heavy atoms.

USSR

UDC 621.375.432.3

LEVCHENKO, D. G., YANCHURKIN, B. S.

"Study of the Frequency Characteristics of Two-Transistor Emitter Repeaters"

Tr. Sib. n.-i. in-t metrol. (Work of the Siberian Scientific Research Institute of Metrology), 1970, vyp. 5, pp 54-61 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D125)

Translation: Some schematics of two-transistor emitter repeaters -- component, amplifying, summing -- are presented. The results of experimental investigation of the frequency dependence of the transmission coefficient with respect to voltage and phase shift of the input and output voltages for these circuits and also the frequency dependence of the input impedance are discussed. There are eight illustrations and a seven-entry bibliography.

1/1

USSR

UDC: 621.317.79

LEVCHENKO, D. G., YANCHURKIN, V. S.

"On the Design of Highly Selective Low-Frequency Measurement Amplifiers"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 3 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 3), Novosibirsk, 1970, pp 114-118 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A374)

Translation: A device is described which is designed for use as a null indicator in AC bridges and other similar equipment. The distinguishing element of this null indicator is a selective device with LC tank and with Q multiplication. The stability of the latter without self-excitation depends on the stability of the elements of the tank circuit and the stability of the negative resistance introduced into the circuit by an electronic system which consists of a summing repeater and a positive feedback circuit. For preamplification ($\sim 10^7$), a wide-band amplifier is used with deep negative feedback. Details of the new circuit are presented and its advantage over previous models is shown. Bibliography of eight titles.

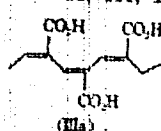
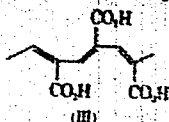
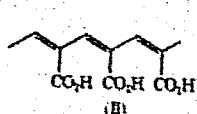
1/1

- 60 -

Acc. Nr. **AFD100204** Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code
UR0062

[11851] Decarboxylation of polymeric acids with conjugated bonds. Yandarova, M. N.; Geidenkh, M. A.; Kreitsel, B. A. (Inst. Neftekhim. Sin. im. Topchieva, Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 78-84 (Russ). The irradiation of HC=CCO₂H (I) in the solid phase gives *trans,trans*-poly(propionic acid) (II); in the liq. phase, *trans,cis*- (III) and *cis,trans*-poly(propionic acid) (IIIa) are obtained (G. V. Khutareva, et al., 1965). The decarboxylation of II, III, IIIa.



poly(acrylic acid) (IV) and I-H₂C:CHCO₂H copolymers was compared. The conjugation reduces the decarboxylation activation energy of II, III, and IIIa to 6-12.5 kcal/mole as compared with 42.7 kcal/mole for IV. The configuration also affects the decarboxylation rates; III in which there is no H bonding between CO₂H groups is decarboxylated faster than II or IIIa. CPJH

REEL/FRAME
19841586

106

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CYCLIZATION REACTIONS WITH THE PARTICIPATION OF EPOXIDES -U-
AUTHOR--(C3)-YANDOVSKIY, V.N., KARAVAN, V.S., TEMNIKOVA, T.I.
COUNTRY OF INFO--USSR
SOURCE--USP. KHIM. 1970, 39(4), 571-607
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CYCLIZATION, EPOXIDE, DIMERIZATION, HETEROCYCLIC BASE COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1133 STEP NO--UR/0074/70/039/004/0571/0607
CIRC ACCESSION NO--AP0128560
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128560

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 307 REFERENCES THROUGH 1968, COVERING INTRA, AND INTERMOL. CYCLIZATION REACTIONS OF EPOXIDES, INCLUDING THEIR DIMERIZATION AND CYCLOMERIZATION AND SYNTHESIS OF CARBOCYCLIC AND HETEROCYCLIC COMPOS. BY MEANS OF SUCH REACTIONS.

FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 620.193.27

YANDUSEKIN, K. N., and KORKOSH, S. V., Central Scientific Research Institute
of Shipbuilding Technology

"Corrosion of Copper-Nickel Sea-Water Pipes"

Moscow, Zashchita Metallov, Vo. 6, no. 4, Jul-Aug 70, pp 429-433

Abstract: A study was made of corrosion distribution over standard elements of copper nickel pipes: branch pipes, elbows, flange couplings, pipes with a pinch (0.1 of the inner diameter of the pipe). The test duration was 6000 hours and the sea-water flow rate was 3, 5, and 7 m/sec. The branch pipe appeared to be subjected to most intensive pitting corrosion. The pits were cavity shaped with maximum depth near the weld. The weld itself showed no appreciable corrosion. A similar picture of corrosion failures was observed at pipe joints tested at current flow rates of 3 and 5 m/sec. The maximum cavity depth in 6000 hours of testing at a flow rate of 7 m/sec was 1.64--2.85 mm and at 3 and 5 m/sec -- 0.25 to 0.64 and 1.24 to 1.48 mm, respectively. Elbows with a bend radius of 2 outer diameters showed pitting corrosion at the area of the bend; the cavity depth was 3.4 mm. Pitting corrosion areas were observed near local obstacles, such as pinches, projecting weld joints, etc.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CORROSION RESISTANCE OF COPPER PIPES IN A FLOW OF SEA WATER -U-

AUTHOR--YANDUSHKIN, K.N.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(1) 46-8

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CORROSION RESISTANCE, SEA WATER CORROSION, COPPER PIPE,
FLOW RATE/(U)M2S COPPER PIPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/1195

STEP NO--UR/0365/70/006/001/0046/0048

CIRC ACCESSION NO--AP0049373

UNCLASSIFIED

2/2 027
CIRC ACCESSION NO--AP0049373

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMONG OTHER SIGNIFICANT VARIABLES, BLACK SEA WATER HAD THE SEASONAL TEMP. VARIANT WITH THE LOWEST AV. FOR FEB. 7DEGREES AND FOR JULY 24DEGREES. CORROSION TESTS WERE MADE WITH M2S TYPE CU TUBING 19 MM INTERNAL DIAM. 300 MM LONG TIGHTLY COILED, WITH WATER FLOW RATES OF 1, 2, 3, AND 5 M PER SEC; THESE FLOW RATES CORRESPONDINGLY WERE 1-2 ORDERS GREATER THAN THAT OF THE REYNOLDS NO. FOR THE ONSET OF TURBULENCE. TESTS UP TO 2000 HR WERE AFFECTED BY THE O CONTENT, VIZ. IN SUMMER 6.9-7.4 AND IN THE WINTER 8.7-9.1 MG-L.

UNCLASSIFIED

USSR

UDC: 620.193.27

YANDUSHKIN, K. N.

"Corrosion Resistance of Copper Pipe in Sea Water Flow"

Moscow, Zashchita Metallov, Vol 6, No 1, Jan-Feb 70, pp 46-48

Abstract: The corrosion resistance of commonly used copper pipe in sea water depends, in many respects, on the operational modes of water flow. The tests described here were carried out on a pipe stand with water from the Black Sea. The water flow rates were 1, 2, 3, and 5 m/sec. The summer tests lasted 2000 hrs. with intermediate inspections at 250-, 500-, 1000-, and 1500-hour intervals; the winter tests were continued for 1250 hrs. The effect of sea water on the corrosion rate of the copper pipe was found to be significant, but it diminished with testing time. The corrosion rate during the summer is 1.3 to 5 times higher than that during the winter. The data show that an increase in temperature by 13 to 16° increases the corrosion rate 1.3 to 5 times. At sea water flow rates of 1 to 5 m/sec and a test duration of 2000 hrs, the rate of total corrosion of straight copper pipe is 0.043-0.062 mm/year and is 4 to 6 times higher than in smooth sea water. The corrosion rate of bent pipe (180° bend angle, the bending radius being equal to three outer pipe diameters) is 1.2 to 1.6 times higher than that of straight pipe.

1/1

USSR

YANELIS, V.

"The Pure Water of Lake Baykal"

Moscow, Meditsinskaya Gazeta, 19 Nov 71, p 2

Abstract: In 1971 the CPSU Central Committee and the USSR Council of Ministers adopted a decree on additional steps to preserve and use wisely the riches of the Baykal basin. Lake Baykal is famous worldwide for the purity of its water, its great depth, and so on. For some thirty years now, it has been extensively studied by Soviet scientists in various areas. There are about 100 associates in nine laboratories at the Institute of Limnology, Siberian Department, Academy of Sciences USSR, and their main areas of research now are: maintaining the water balance in the lake; the structure and resources of the Baykal regional climate; the laws of current formation in the shoreline zone of the lake; and, the pelagic region. This is, however, only one of the numerous groups of scientists working here. Primary concern for the question of water purity lies in the question of the cellulose plant and its effluent. It needs Baykal water to produce its beneficial product, and must devote great attention to purifying runoff. Dozens of millions of rubles have been spent on the various processes, which involve both chemical and biological

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USSR

YANELIS, V., Meditsinskaya Gazeta, 19 Nov 71, p.2

purification. Oxygen and microorganisms oxidize organic substances in effluent, aluminum sulfate is added to complete the process and then polyacrylamide is used to accelerate sedimentation. A shop was recently launched for drying activated sludge, an aeration pond is now being finished and more are planned, there will be an effluent-processing shop, and much more. Main responsibility for monitoring the state of Baykal water falls to the Basin Inspectorate and the Baykal Division of the Hydrochemical Institute, which maintains 50 sampling points along the south shore of the lake (as well as checking the water in 15 tributary rivers). While the main concern now is water pollution, attention is also being given to preserving and wise use of the Baykal region forests.

2/2

- 84 -

USSR

UDC: 8.74

POPOV, A. A., LAVRIV, Ya. M., STARCHIK, V. P., CHEKAYLO, M. A.,
SHUL'GA, V. A., SHCHITKO, V. N., YANENKO, V. M.

"Automated System for Statistical Analysis of Medical and Biological Data"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 14, pp 76-82 (from RZh-Kibernetika, No 5, May 73, abstract No 5V778 by the authors)

Translation: The paper discusses the functioning of an automated system for analysis of medical and biological data. Requirements for the software system are given. Statistical methods and criteria are presented which are realized in the system.

1/1

USSR

UDC: 681.3.06:51

LAVRIV, Ya. M., MEL'NIKOV, V. G., POPOV, A. A., STARCHIK, V. P., YANENKO, V. M.

"Formation of an Information Block of Medical Documents in a Clinical Medical Information System"

V sb. Biol., med. kibernet. i bionika (Biology, Medical Cybernetics and Bionics--collection of works), vyp. 3, Kiev, 1970, pp 3-11 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV720)

Translation: The existing practice of collecting and storing information in a public health system leads to redundant and partially erroneous data presented in handwritten form, inconvenient for analysis and formulation of a diagnosis. To effectively ensure public health functions, a medical information system is proposed which is a cybernetic system of the "man-automaton" type. The system includes the medical personnel who take care of collecting medical information on the appropriate standard form for the history of an illness as well as evaluating the results of information processing; the system also includes the mathematicians who develop the mathematical apparatus for collecting and processing data

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LAVRIV, Ya. M. et al., Biol., med. kibernet. i bionika, vyp. 3, Kiev, 1970, pp 3-11

(create a flowchart and language for communication between the digital computer and man, algorithms and programs for processing medical information), and the engineering and technical personnel who service the technical facilities of the system. The authors note two approaches to solution of the problems of ensuring effective communication between the physician and the digital computer, and operational accumulation and transmission of information in a form to which the physician is accustomed: 1) development of a specialized medical logical information language, which requires formalizing the representation of the initial data, introducing correctives into the identification of terms, etc.; 2) development of a standardized form for the history of an illness as a preliminary stage to complete formalization. The principles of standardized forms for the history of an illness in the cardiological group are described. The form consists of an explanatory section (algorithms for examination of a patient for various illnesses) and a summarizing section (model or parameters of the state of the patient). An example of a fragment of a standardized form for the history of an illness is described ("Circulatory Organs"). A. Doroshenko.

USSR

UDC 518.5:681.3.06

KRISILOV, A. D., YANENKO, V. M., POPOV, A. A., YASINOVSKIY, M. A., SAPBYGIN, Y. G.

"The Problem of Algorithmization of the Differential Diagnosis of Rheumatism"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Engineering, Republic Interdepartmental Collection], No 7, 1970, pp 102-107, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V641 by the authors).

Translation: A list of characteristics is suggested for description of diseases being diagnosed, including, in addition to the symptoms, certain intermediate diagnostic information. The applicability is demonstrated and certain altered statistical decision rules are calculated by computer. Results are presented from machine differential diagnosis of five diseases and the direction of further work is noted.

USSR

UDC: 518.5:681.3.06

YANENKO, V. M.

"On Some Types of Resolving Functions for Computerized Medical Diagnosis"

V sb. Biol., med. kibernet. i bionika (Biology, Medical Cybernetics and Bionics--collection of works), vyp. 3, Kiev, 1970, pp 12-24 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V777)

Translation: The medical diagnostic process consists of three stages: 1) collection of information on the patient, and representation of this data in the form of a standardized history of the illness; 2) isolation and identification of the symptoms for plotting the clinical pattern of the illness; 3) formulation of the diagnosis. Methods are considered for finding optimum solutions of the following problems on the second stage of diagnosis: 1) finding the minimum number of gradations θ in the degree of seriousness of the symptoms s_i such that the probability of proper diagnosis $P_j(\theta)$ is greater than or equal to a given P_j^* ; 2) to find the minimum possible routes of patient examination under the condition of ensuring a predetermined reliability of diagnosis. Optimum

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YANENKO, V. M., Biol., med. kibernet. i bionika, vyp. 3, Kiev, 1970, pp 12-24

solution of problem 1 reduces to finding the maximum path on a graph. For the solution of problem 2, a close to optimum search algorithm is presented for the localized minimum route. The given algorithms are realized in the diagnostic complex of the medical information system developed at the Institute of Cybernetics, Academy of Sciences of the Ukrainian SSR. Bibliography of 18 titles. A. Doroshenko.

USSR

UDC 669.15'26'28-194:620.186

VINITSKIY, A. G., ~~YANENSKIY, N. YE.~~, MOSHNYAGUL, V. V., KOGAN, G. M., SHCHEGLYUK, P. S., and POKRYSHKINA, V. A., Kirovograd Institute for Agricultural Machine Building

"Influence of Structure on the Wear Resistance of Stamps Made of Kh12M Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 74

Abstract: The influence of the structure of Kh12M steel on the wear resistance was studied as applicable to conditions of operation of dies and matrices of stamps for cutting and punching of transformer steel. It was found that Kh12M steel with austenitic structure has higher wear resistance under dry friction conditions with dynamic loading than hardened martensitic steel. Hardening from 1180-1200°C in oil and tempering at 180-220°C for 1.5-2 hr represent the optimal heat treatment mode for Kh12M steel.

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YANES, Kh.

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MEDICINE

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JPD:SOVIET SCIENCE

57. USSR

YANES, Kh., Candidate of Medical Sciences
"Scientific Session of Medical Workers"

Tbilisi, Sovetskaya Kaznitsa, 8 Oct 70, p 4

Translation: The Institute of Experimental and Clinical Medicine of the Ministry of Health patronized SM maintaining permanent ties with the mine and colliers of the State health of the Kaznitsa SM and Leningrad Oblast. Our scientists have already been working more than 20 years on the problems of work hygiene and professional pathology in the mine industry. It has become a tradition to regularly inform enterprise and technical personnel of the enterprises of the mine industry and local medical workers about the results of scientific work and to jointly search out the paths of further research.

The regular vigorous scientific effort session (YANES, Kaznitsa Kaznitsa) on the problems of industrial sanitation and occupational pathology in the mine industry took place several days ago in Kaznitsa-Tbilisi. There was a discussion here on labor conditions at the mine mines and their processing enterprises, on early diagnosis and prevention of occupational diseases, and on many other things.

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YANES, Kh., Sovetskaya Kaznitsa, 8 Oct 70, p 4

Besides the Institute's workers, scientists from Leningrad, Tbilisi, Kiev, Ufa, Stalinsk, and Tver spoke at the session.

USSR

YANEV, N. M.

"One Class of Expandable Branching Processes Dependent on the Age of Particles"

Math. balkan., 1972, 2, pp 58-75 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V82 by B. Sevast'yanov)

Translation: A branching process is studied with conversions, dependent on the age, and with immigration occurring at moments of restoration of a certain restoration process, the dimensions of which depend on the time interval to the next immigration. The asymptotes of the first two moments are found. Limit theorems are proven in the subcritical and supercritical states.

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UNCLASSIFIED
TITLE--PHYSIOCHEMICAL STUDIES OF BISMUTH, CADMIUM, MERCURY SYSTEM ALLOYS -U-
AUTHOR--(03)-NOSEK, M.V., YANG, S.H., ATAMANOVA, N.M.
COUNTRY OF INFO--USSR
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DATE PUBLISHED-----70
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CIRC ACCESSION NO--AP0120287

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PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAPHIC ANAL. OF THE TERNARY SYSTEM SHOWED 2 ISOTHERMAL PLANES CORRESPONDING TO THE PERITECTIC REACTION AT 117DEGREES, CD PLUS LIQ. FORMS AND IS FORMED FROM (HG) BI AND AT MINUS 34DEGREES, OMEGA PLUS LIQ. FORMS AND IS FORMED FROM (HG) PLUS BI. BOTH SECTIONS CONTAINED 5 AREAS FREE OF LIQ.: BI PLUS CD, BI PLUS CD PLUS OMEGA, BI PLUS OMEGA, BI PLUS OMEGA PLUS (HG), BI PLUS (HG). X RAY ANAL. REVEALED THAT IN THE TERNARY SYSTEM, BI APPEARS AS A DISTINCT PHASE AND THAT HG FORMED A SOLID SOLN. WITH CD. MICROHARDNESS TESTS SHOWED THAT BI DID NOT AFFECT THE HARDNESS. FACILITY: INST. KHIM. NAUK. ALMA-ATA, USSR.

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